

IN THE CLAIMS:

Please **AMEND** claims 1, 4, 6, and 7, and **CANCEL** claims 5, 15, 17, and 19 without prejudice or disclaimer in accordance with the following:

1. **(CURRENTLY AMENDED)** An apparatus for recording data on an optical recording medium, comprising:

a recording waveform generating unit which generates a recording waveform having an erase pattern containing a leading pulse and a multi-pulse having a high power level and a low power level and a recording pattern containing recording pulses, a power level of the leading pulse of the erase pattern being the low power level of the multi-pulse and a power level of a period between an end point of the erase pattern and a start point of a leading pulse of the recording pattern being the high power level of the multi-pulse; and

a pickup unit which generates light to the optical recording medium according to the generated recording waveform so that a mark or a space is formed on the optical recording medium;

wherein the recording waveform generating unit generates a further multi-pulse of another recording pattern, and a cooling pulse having a cooling power level less than the low power level of the multi-pulse and connecting the leading pulse of the erase pattern and another portion of the further multi-pulse of the another recording pattern.

2. **(ORIGINAL)** The apparatus of claim 1, further comprising: a channel modulation unit which channel modulates data provided from an outside source, and outputs an NRZI data signal to the recording waveform generating unit.

3. **(ORIGINAL)** The apparatus of claim 1, wherein the pickup unit comprises:

a motor which rotates the optical recording medium;

an optical head having a laser device which generates a laser beam to the optical recording medium or receives the laser beam reflected from the optical recording medium;

a servo circuit which servo-controls the motor and the optical head; and

a laser driving circuit which drives the laser device installed in the optical head.

4. **(CURRENTLY AMENDED)** An apparatus for recording data on an information storage medium, comprising:

a recording waveform generating unit which generates a recording waveform comprising

a recording pattern having recording pulses, an erase pattern having a leading pulse and a multi-pulse having a high power level and a low power level, and a cooling pulse concatenating the recording and erase patterns, a power level of the leading pulse of the erase pattern being the low power level of the multi-pulse and a power level of a period of between an end point of the erase pattern and a start point of a leading pulse of the recording pattern being the high power level of the multi-pulse; and

a pickup unit which records with respect to the information storage medium according to the generated recording waveform so as to form a mark and/or a space on the information storage medium,

wherein the cooling pulse has a cooling power less than a power of a last pulse of the recording pattern and the low power level of the leading pulse of the erase pattern.

5. (CANCELLED)

6. (CURRENTLY AMENDED) The apparatus of claim 4, wherein the generating unit adjusts the period of the recording pattern to be the high power level according to a pulse of the multi-pulse of the erase pattern.

7. (CURRENTLY AMENDED) An apparatus for recording data on an information storage medium, comprising, comprising:

a modulator which modulates input data according to according to a Run Length Limited (RLL)(1, 7);

a recording waveform generating unit which receives the modulated input data and generates a recording waveform which includes first pulses to form the recording pattern in response to a first level of the input data and a leading pulse and a multi-pulse having a high power level and a low power level to form the erase pattern in response to a second level of the input data, a power level of the leading pulse being the low power level of the multi-pulse and a power level of a period between an end point of the erase pattern and a start point of a leading pulse of the recording pattern being the high power level of the multi-pulse; and

a pickup forming a mark or a space by using the generated recording and erasing waveforms,

wherein the recording waveform generating unit generates in the recording waveform a cooling pulse concatenating the recording and erase patterns and having a cooling power other than the low power level of the erase pattern.

8. (PREVIOUSLY PRESENTED) The apparatus of claim 1, wherein the recording waveform generating unit generates the recording waveform using the input data modulated according to a Run Length Limited (RLL)(1, 7) method.

9. (PREVIOUSLY PRESENTED) The apparatus of claim 1, wherein:

- the recording waveform comprises another recording pattern formed of a further multi-pulse including the leading pulse of the recording pattern,
- the further multi-pulse comprising corresponding high power recording pulses with a high recording power level and low power recording pulses having a low recording power level,
- the high recording power level being greater than the high power level of the erase pattern, and
- the low recording power level being less than the low power level of the erase pattern.

10. (PREVIOUSLY PRESENTED) The apparatus of claim 7, wherein:

- the recording waveform comprises another recording pattern formed of a further multi-pulse including the leading pulse of the recording pattern,
- the further multi-pulse comprising corresponding high power recording pulses with a high recording power level and low power recording pulses having a low recording power level,
- the high recording power level being greater than the high power level of the erase pattern, and
- the low recording power level being less than the low power level of the erase pattern.

11. (PREVIOUSLY PRESENTED) The apparatus of claim 4, wherein:

- the recording waveform comprises another recording pattern formed of a further multi-pulse including the leading pulse,
- the further multi-pulse comprising corresponding high power recording pulses with a high recording power level and low power recording pulses having a low recording power level,
- the high recording power level being greater than the high power level of the erase pattern, and
- the low recording power level being less than the low power level of the erase pattern.

12. (PREVIOUSLY PRESENTED) The apparatus of claim 5, wherein:

- the recording waveform comprises another recording pattern formed of a further multi-

pulse including the leading pulse of recording pattern,

the further multi-pulse comprising corresponding high power recording pulses with a high recording power level and low power recording pulses having a low recording power level,

the high recording power level being greater than the high power level of the erase pattern, and

the low recording power level being less than the low power level of the erase pattern.

13. (PREVIOUSLY PRESENTED) The apparatus of claim 9, wherein the recording waveform generating unit generates the recording waveform to include a cooling pulse concatenating the recording and erase patterns and having a cooling pulse power that is less than the low power level of the erase pattern.

14. (PREVIOUSLY PRESENTED) The apparatus of claim 10, wherein the period starts when the second level changes to the first level.

15. (CANCELLED)

16. (PREVIOUSLY PRESENTED) The apparatus of claim 1, wherein the recording waveform further comprises a cooling pulse concatenating and included in the erase pattern and an additional recording pattern, the cooling pulse having a cooling power less than a power of a last pulse of the another multi-pulse of the recording pattern and the low power level of the leading pulse of the erase pattern.

17. (CANCELLED)

18. (PREVIOUSLY PRESENTED) The apparatus of claim 5, wherein the cooling pulse has a cooling power less than a recording power of the recording pattern and the low power level of leading pulse of the erase pattern.

19. (CANCELLED)

20. (PREVIOUSLY PRESENTED) An apparatus for recording data on an optical recording medium, comprising:

a recording waveform generating unit which generates a recording waveform having an

erase pattern containing a leading pulse and a multi-pulse having a high power level and a low power level, a recording pattern containing another multi-pulse, and a cooling pulse having a cooling power level below the low power level and which concatenates the recording and erase patterns, a power level of the leading pulse of the erase pattern being the low power level of the multi-pulse and a power level of a period between an end point of the erase pattern and a start point of a leading pulse of the recording pattern being the low power level of the multi-pulse; and

a pickup unit which generates light to the optical recording medium according to the generated recording waveform so that a mark or a space is formed on the optical recording medium.